

# LL series

## Features

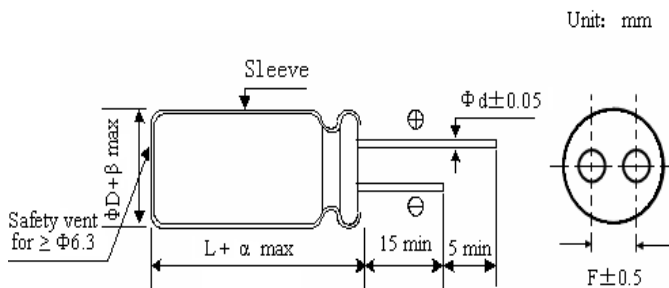
- ◆ Extremely low and stable leakage current characteristics, 2000 hours at 105°C.
- ◆ RoHS Compliant .



## Specifications

Item	Performance Characteristics								
Temperature Range	-40~+105°C								
Rated Voltage Range	6.3~100Vdc								
Capacitance Range	1.0~3300μF								
Capacitance Tolerance	±20% (120Hz, +20°C)								
Leakage Current (+20°C,max.)	I≤0.002CV 或 0.4 (μA) After 2 minutes, whichever is greater measured with rated working voltage applied								
Dissipation Factor(tgδ) 120Hz, +20°C	Working Voltage(Vdc)	6.3	10	16	25	35	50	63	100
	D.F.(%)max.	28	24	20	16	14	12	10	8
For capacitance>1000μF, Add 2% per another 1000μF (120Hz, +20°C)									
Low Temperature Characteristics(120Hz)	Impedance ratio max.								
	Working Voltage(Vdc)	6.3	10	16	25	35	50	63	100
	Z-25°C/ Z+20°C	5	4	3	2	2	2	2	2
Z-40°C/ Z+20°C	12	10	8	5	4	3	3	3	
For capacitance>1000μF, Add 0.5 per another 1000μF For Z-25°C/ Z+20°C,Add 1.0 per another 1000μF For Z-40°C/ Z+20°C									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 105°C								
	Capacitance Change	≤±25% of the initial value							
	D.F.( tgδ)	≤200% of the initial specified value							
Shelf Life	After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the load life characteristics listed above.								
	Leakage Current								
	≤The initial specified value								
Others	JISC-5101(IEC 60384)								

## Diagram of Dimensions



## Frequency Multipliers

μF	Hz				
	50	120	300	1K	10K~
<68	0.75	1.00	1.35	1.57	2.00
68~470	0.80	1.00	1.23	1.34	1.50
>470	0.85	1.00	1.10	1.13	1.15

ΦD	5	6.3	8	10	13
F	2.0	2.5	3.5	5.0	5.0
Φd	0.5	0.5	0.5	0.6	0.6
α	(L< 20) + 1.5		(L≥20) + 2.0		
β	(D< 20) + 0.5		(D≥20) + 1.0		

**LL series****Standard Ratings**

Voltage	6.3V		10V		16V		25V	
Cap( $\mu$ F)	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
4.7							5×11	18
10					5×11	24	5×11	30
22	5×11	21	5×11	33	5×11	45	5×11	48
33	5×11	33	5×11	48	5×11	54	5×11	57
47	5×11	45	5×11	57	5×11	66	5×11	69
100	5×11	78	5×11	87	6.3×11	105	6.3×11	111
220	6.3×11	129	6.3×11	138	8×12	180	8×12	192
330	6.3×11	159	8×12	198	8×12	216	10×12	252
470	8×12	216	8×12	234	10×12	282	10×17	324
1000	10×12	342	10×17	378	10×20	474	13×20	570
2200	13×20	630	13×20	660				
3300	13×20	750						

Voltage	35V		50V		63V		100V	
Cap( $\mu$ F)	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current	Case Size	Ripple Current
1.0			5×11	10	5×11	14	5×11	10
2.2			5×11	14	5×11	21	5×11	18
3.3			5×11	21	5×11	24	5×11	24
4.7	5×11	21	5×11	24	5×11	27	5×11	27
10	5×11	33	5×11	39	5×11	42	6.3×11	45
22	5×11	51	6.3×11	57	6.3×11	69	8×12	78
33	5×11	63	6.3×11	75	8×12	84	10×12	102
47	6.3×11	84	6.3×11	90	8×12	114	10×17	138
100	8×12	138	8×12	150	10×12	180	13×20	240
220	10×12	222	10×17	264	10×20	294		
330	10×17	294	10×20	398	13×20	408		
470	10×20	384	13×20	456				

Max Allowable Ripple Current (mA,rms) at 105°C 120Hz,Case Size  $\Phi$ D×L(mm).

Above size is the standard size for our product. If you need special size please contact our sales offices.